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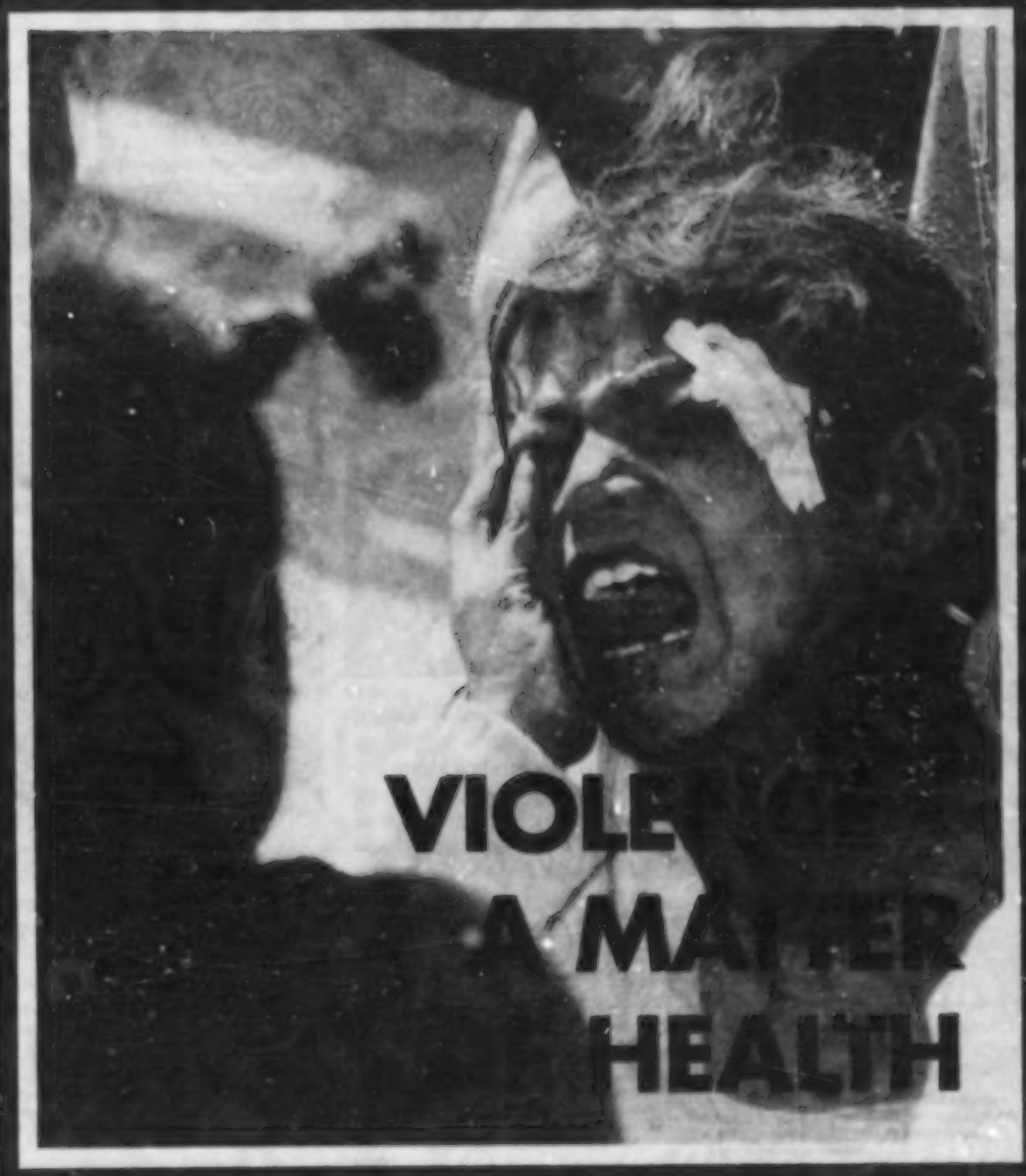

WORLD HEALTH
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In this issue

World Health Day 1993
Handle life with care; prevent violence and negligence 3
Hiroshi Nakajima

Violence: a preventable disease 4
Claude E. Narine

What do you mean – bad luck? 5
Georges-Yves Kervern & Patrick Rubin

Too much to pay for freedom 7
Claude Got

Nobody rebels 9
Geneviève Jurgensen

The elderly can avoid falls 10
François Lowe

Avoidable dangers on the farm 12
Dinesh Mohan

Accidents in the developing world 14
I. G. Rudnev

Spokeswomen against violence and injury 16–17

Causes and remedies 18
Anthony Zwi, Berndte Waks & Eugene Sosnovnikov

Violence against women 21
Lori L. Heise

Child abuse and neglect 22
Richard Krugman

Violent youth 24
Michael Mercimus

Victims of war 26
Anthony Zwi & Antonio Ugalde

Warfare and health 28
Rima Marshack

WHO in action 29

Violence Prevention Coalition 30
Mike Weiss

page 19

Cover J. L. Ray/Aga Khan Foundation

page 8

page 28

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Editorial

World Health Day 1993

Handle life with care; prevent violence and negligence

Dr Hiroshi Nakajima, Director-General of the World Health Organization.

In devoting World Health Day 1993 to the prevention of accidents and injuries, the World Health Organization wishes to draw attention to the sometimes disastrous consequences for individuals and society of accidents and acts of physical violence, which very often can be prevented.

At least three and a half million people on our planet die every year as a result of injuries caused by accidental or intentional violence. Whether on the roads, at home, at work or at play, the risks of injury to individuals have been neglected for too long, and the need to prevent and reduce them has so far received little public attention.

Today, public health is improving in many countries, and life expectancy at birth is increasing everywhere. It is therefore less acceptable than ever before that so many people should meet a violent and premature death, or that millions of others should become permanently handicapped. More than half the deaths of young people are due to injuries, and injuries represent the main cause of potential years of life lost.

As a result of negligence, indifference or foul play, millions of people each year require medical care after accidents or acts of physical violence. At a time when economic crises are jeopardizing efforts to improve the health of mankind, injuries of all kinds cost the world community almost US$ 500 thousand million a year in medical care and lost productivity.

In devoting World Health Day 1993 to the prevention of accidents and injuries, the World Health Organization wishes to draw attention to the sometimes disastrous consequences for individuals and society of accidents and acts of physical violence, which very often can be prevented. It is time to show that in contemporary society safety is a matter of individual and collective responsibility. Far from being a marginal concern, it should form an integral part of health promotion policies.

To lose a healthy life, only through carelessness, is a tragic waste. Accidents and acts of violence happen easily, and not just to other people. The safety of each is the responsibility of all. ■

READER FIGHT

H. Nakajima

Hiroshi Nakajima, M.D., Ph.D.

Violence: a preventable disease

Claude J. Romer

Violence lurks deep within everyone. Martial arts and sports are one way of defusing violence.

Violence is a universal scourge of humanity, in time as well as in space. In a time sense, because it has always been – and still is – the Number One reason for people to die at too young an age. In a spatial sense, because it pervades all societies, whatever their level of development.

Violence can be intentional – occurring to the individual, within the family or within the community; or it can take the form of a commonplace accident attributed to chance or – as so often happens – blamed on "bad luck." Unfortunately, some people may regard violence as both necessary and justified. What is more, it lurks deep within everyone, ready to surge up from our subconscious for reasons that are sometimes trivial.

This is why violence forms the theme for World Health Day, 7 April 1993. It is a complex and sensitive subject, but its complexity hardly justifies society's inaction on the grounds that taking action might be too costly – when the consequences of inaction are death or mutilation for individuals, families or entire communities, and mental scarring of persons close to the victims. Physical mutilation is far from being the only outcome of violence; it is often only the forerunner of deep psychological trauma. So such terms as violence, injury and accidents are no longer neutral if we eliminate chance or irresponsibility.

Accidents and, to a lesser degree, violence in general have long been seen as a matter for the police to deal with rather than health professionals. Today it is absolutely vital to make everyone aware that violence and injury are preventable.

Among the articles in this issue of *World Health*, several try to show that our day-to-day safety does not depend on chance or fatality; they underline that mankind has the necessary knowledge to overcome dangerous situations and that, provided we apply that knowledge correctly, accidents can become no more than occasional incidents.

Some of the articles look at the more hidden aspects of violence: abuse of children within the family, violence towards women or the elderly – expressions of an outmoded law that the strongest survive. The message which comes out clearly from the mere reporting of such situations is that the phenomenon of violence is a public health problem, that there is an epidemiology of violence as there is an epidemiology of poliomyelitis, and that by learning to understand the causes or effects of violence we can little by little arrive at ways to prevent it. Any discussion of the means of prevention should think of violence in terms of health rather than of penal codes and punishment. The important thing is for a dialogue to be established, as a precursor to the study of solutions.

The growing complexity of technology and social organization in industrialized societies and the chronic poverty in other parts of the world are both accompanied by a greater vulnerability. Violence forms one part of that complexity and is one expression of that vulnerability. The time is ripe to examine its effects on health and to take measures to limit the harmful consequences. ■

Dr Claude J. Romer is Chief of the Injury Prevention Programme, WHO, 1211 Geneva 27, Switzerland.

What do you mean – bad luck?

Georges-Yves Kervern & Patrick Rubise

We need to replace the notion of "luck" or "misfortune" by the notion of mastering dangers by understanding them. The tools with which to overcome risks already exist.

Many people think that the greatest dangers stem from natural phenomena (earthquakes, floods, tidal waves, cyclones) and industrial accidents (chemical, and even worse, nuclear). Yet terrible dangers lurk in our daily life if we count the numbers of victims. Homes, gardens, cars, factories – but also places of leisure like beaches, mountains, sports fields – all of these are potential sources of accidents.

Every technical innovation is synonymous with new risk. A typical example is the motorcar which, ever since it was invented, has constantly been improved both in terms of performance – including comfort and speed – and in safety. But its success and popularity have created a situation which is responsible for a huge toll of victims. Introducing ever more sophisticated machines into our homes means that our environment is not as safe as we like to think.

We have to investigate the dangers if we hope to reduce the health consequences – disablement and injury of all kinds. Whereas the big ecological catastrophes, which attract the attention of scientists and the media, are clearly enough defined and traffic accidents generate many volumes of statistics, accidents on the sports field are kept virtually confidential, although they worry the sporting federations; figures for accidents occurring in the home are little more than guesses. In France, for instance, the greatest danger arises from the minor hazards of everyday life, and domestic accidents cause more than 20 000 deaths a year. Road accidents come only second, with 10 000 deaths, and then accidents at work, with about 1000 deaths.

Once the risk of an accident has been identified, we need to know the causes in order to understand how to avoid it. Whatever the accident – industrial or domestic – any research will have to be based on experience and root causes. If we start from the premise that the same causes will engender the same effects, a study of causes is the first exercise to undertake following an accident. What, for instance, is the difference between the beaching of the oil-tanker Exxon-Valdez, which caused a massive oil-spill off Alaska, and nearly one-third of the fatal accidents on French roads? None. The cause of both is the same: alcohol abuse. The chain of causation can apply equally well to nuclear hazards as to risks met with in heavy traffic or at work.

A simple kitchen conceals many dangers, especially for young children – and father's smoking does not make it any healthier!

A new science

We need to replace the notion of "luck" or "misfortune" by the notion of mastering dangers through know-how. The tools to master accidental hazards do exist, and form the basis of a science which is rooted in mathematics and statistics, physics and chemistry, and other disciplines. This transverse science was born out of the need to build bridges between researchers in different fields, a science using the mathematical theory of systems; it has been given the name "cindynics" from the Greek *kindunos*, danger. It is divided into megacindynics – dealing with major catastrophes, whether technological or natural; and microcindynics – which

analyses the no less deadly risks which we run every day but accept out of intellectual inertia or through fatalism. This science already has its own research centres and is increasingly being taught in the universities.

Dr Zebrowski, a member of the US National Academy of Engineering who is in charge of the Nuclear Safety Analysis Center at Palo Alto in California, frequently repeats that catastrophes are not accidents. What he means is that they are not the fruit of blind misfortune. Research into the major technological catastrophes shows that the events that preceded them had obvious points in common, and when these are analysed – "experience feedback" – they prove the existence of "systemic cindynogenic failing". These failings create dangers in such "systems" as a factory, a home or a motor vehicle.

Ten of these cindynogenic failings fall into three main categories, as follows:

- cultural failings: (1) belief that one is infallible, (2) naivety, (3) non-communication, (4) self-centredness;
- organizational failings: (5) priority to productivity over security, (6) dilution of responsibilities;
- management failings: (7) omitting to analyse the events which led up to an accident, (8) failure to plan security in a methodical way, (9) failure to train personnel in the science of risk, or (10) lack of crisis planning.

These failures underlie all the big technological accidents, such as the chemical catastrophe in Bhopal (India) in December 1984; the blowing up of the US space-shuttle Challenger in January 1986; the nuclear disaster at Chernobyl (former USSR) in April 1986; or the oil-spill from the Braer off the Shetland Islands in January 1993.

Megacindynics and microcindynics have a great many points in common, since the causes of "major accidents" are replicated in "minor accidents."

Technology creates dangers and man today is a high-risk gambler; the idea of zero risk is hopelessly utopian. But our awareness of the dangers is such that today it is more and more difficult to talk about "bad luck." If all the known measures of prevention and protection to guard against accidental dangers were applied, the very term "accident" would start to fall into disuse. ■

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Alcohol weakens judgement; it's one of the major causes of serious accidents.

When a major crisis strikes

Bhopal and Chernobyl, large-scale disasters such as these are becoming more numerous and result in the rapid degradation of whole ecosystems. Two imperatives arise: we have to be more strict in preventing such major risks, and we have to stand ready to deal with crises when they occur – crises which are all the more serious when they concern health.

Up to now we tended to use "accident" as the reference point. But the prevention and management of crises is now becoming the most important question for all responsible authorities. A crisis may be of unknown nature and duration, and will involve huge numbers of people to deal with it, major media problems, all manner of snowball effects – in fact many factors will be at stake, each demanding priority and requiring value judgements.

Crises cannot be overcome with the help of a few experts and a rescue plan. Their triple dynamic – a sea of troubles rapidly overwhelming our capacity to respond, the failure of existing systems to function properly, and a wide disparity in the choices available to us – makes it necessary to follow three essential principles: we have to avoid making snap judgements which may result in a loss of credibility; we have to bring to bear all possible strategic know-how; and we have to evaluate precisely the response and ensure its general coherence. Today we have the tried and tested knowledge necessary to draw up operational plans.

Yet the outlook remains troubling; the relevant tools and procedures are often lacking; worse still, there is a reluctance among the decision-makers – it amounts to a "culture gap" – to look at the problems squarely in the face. All the more reason to give top priority to our efforts, without which the human and social costs of each major risk and each crisis will inevitably go on rising.

Communicated by Mr Patrick Lagadec, a research worker at the Ecole polytechnique in Paris. His address is Laboratoire d'Econométrie, 1 rue Descartes, 75005 Paris, France.

Too much to pay for freedom

Claude Got

Is a person less dead through being killed in a road accident than through AIDS? Is it right to accord less importance to one potentially fatal risk than to another?

Who is to blame?

Road accidents are the Number One cause of death among young people aged between 15 and 30 in the industrialized countries. Yet a kind of inertia makes people accept these deaths, as if they were an obligatory price to pay for the freedom of easy individual travel. As the mortality rates from road accidents in one country can be half that in another even though they have the same numbers of cars on their roads, it is clear that accident prevention measures can be effective.

Twenty years of research and health policy action in this field have convinced me that it is possible to devise ways of giving priority to health while safeguarding individual freedom; they have also enabled me to identify the obstacles which such a policy is likely to encounter.

A catastrophe everyone ignores

Because road accidents occur every day at scattered locations, they constitute a catastrophe that is too fragmented and too routine to inspire us with fear. We don't think of the risk of an accident every time we use a car, whereas we do when our airliner is coming in to land, even though the real risk is much less.

Habit unfortunately leads to inertia. There are no street demonstrations or calls for strike action to put pressure on the decision-makers. Rather like those killed in war who are not around to make a fuss, the families of road traffic victims are too burdened with grief and too preoccupied with remaking their own lives to engage in a concerted campaign against this scourge of our times.

Unfortunately, legal sanctions simply cannot keep up with those who break the law. We need to give priority to preventive action, for example, by systematically cracking down on drunk driving. But to be effective, this would involve breath-testing every driver once a year or once every two years. Few countries are willing or able to make such an effort.

Since roads are controlled by and depend on the ministry of transport, motorcar production on industry, traffic codes on the ministry of the interior and punishment on the legal system, those health professionals who have to deal every day with the consequences of road accidents lack the decision-making powers that are needed to reduce them.

Doctors who prescribed to haemophiliacs certain blood products that entailed the risk of transmitting AIDS have been brought before the law courts. Yet people who manufacture cars whose speed is not appropriate for the roads and the administrators who authorize their use on the roads escape all legal action. Is a person less dead through being killed in a road accident than through AIDS? Is it right to accord less

importance to one potentially fatal risk than to another?

As is the case with industrial machinery, car manufacturers ought to take the safety of road users into account from the moment a vehicle is first conceived. And traffic authorities could best prevent accidents by, for instance, using physical means to slow drivers' speed at the approach to a built-up area rather than counting on the willingness of individual drivers to respect other road users.

Safety must have priority

The fact is that, where road traffic is concerned, economic interests take priority over those of public health. It is not pure chance that the countries which build particularly fast cars only "recommend" maximum speeds on their motorways. While airliners and trains have devices – the black box – that record all the circumstances whenever an accident occurs, there is nothing comparable for private vehicles, yet they cause far more deaths than air or rail travel. Furthermore, there are not yet any devices to limit motor vehicle speeds (within approved limits) in towns or on motorways. For the sake of economic gain – even though there is no proof that profits would suffer from such measures – we decline to tackle the problem of road safety at the most basic level.

International organizations have little influence on road safety. The European Economic Community, for instance, harmonizes regulations governing automobile production and their free circulation within the Community; but it does nothing about limiting their speed at the point of construction, except in the case of heavy lorries.

WHO itself interferes very little in this field, yet it ought to be drawing up a charter for road safety. Is it really acceptable to export to the developing world heavy trucks that were designed for the roads of the industrialized countries? The power and speed of these vehicles make no economic sense, because on inadequate roads they consume more fuel and wear out more rapidly; besides this, they are particularly dangerous in regions where road traffic is poorly regulated and where the local residents have no experience of heavy traffic. Contrary to present policy, it would be better to promote vehicles which have low fuel-consumption and are hardy and well adapted to the road conditions of the developing world.

The love of speed, the appetite for alcohol – and the fear of upsetting those who profit from both – conspire to leave road safety dependent on each individual's decision to respect other people's lives – or not, as the case may be. We refuse to separate road safety from private behaviour and, in the name of individual freedom or the freedom to manufacture and sell, we produce only disablement and death. Doesn't this amount to an attack on freedom in much more important areas? So long as we go on producing vehicles that do not match the traffic rules and refuse to equip them with well-tested regulatory systems, we are encouraging death and disablement on the road. ■

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A few moments' care can save a precious life . . .

. . . but society as a whole must lay down and enforce traffic regulations

Nobody rebels

Geneviève Jurgensen

Few people reach adulthood without losing someone. A college friend, someone met at the seaside, a neighbour, even a girlfriend or a brother.

As I drove to my office that morning, admiring the soft winter light over the banks of the River Seine, the traffic slowed to a crawl. Obviously, something had happened. A few metres further on I saw a young girl stretched out in the road beside a motor-scooter. She was pretty, her hair hardly dishevelled, and she lay still as helpers gently loosened her clothing. A chill ran through me as I noticed that her left leg was in a strange position.

We have all seen this sort of thing. People hurled to the ground, clothes rumpled, inert – yet a moment ago so full of life. It's a classic sight in the industrialized world. All parents share the dread of an accident from the moment they first send their children off to school. When the children become adolescents they get their first two-wheeler. Later, they drive off happily in their little secondhand car from party to party, late at night, perhaps a little tipsy. Why are they so late getting home? Traffic jams perhaps...?

Few people reach adulthood without losing someone. A college friend, someone met at the seaside, a neighbour, even a girlfriend or a brother... The killers of young people – in the rich countries – are the car and the motorcycle. Then there are the injured... Those young graduates, sports players, laughing, affectionate, who finish up with only one leg, totally paralysed, shattered.

France alone sacrifices 10 000 of its fellow-citizens every year to deaths by violence on the road. And remember that to those must be added 50 000 injured. Yet nobody rebels. The press has little to say about it. Parents weep, alone, unsupported by any general movement of compassion or any determined action by government. Only a handful of associations, often sponsored by the families of victims, cry out about the immorality of all this. But at the next Motor Show, everybody will accept it as quite normal that new models are displayed capable of speeds that are illegal throughout the land!

One day the epoch we live in – where the primordial desire is to drive fast, as if the road belonged only to us – will seem as strange and barbaric as the wars of the Middle Ages. But that future will only come about if all citizens wake up, and insist that progress be made. They must, in memory of those loved ones who are no longer there to defend themselves! That young girl beside the Seine certainly had parents, brothers and sisters, university friends, probably a boyfriend. It is up to them, in their grief, to demand that other young girls have the chance to go on living, these beautiful winter days in Europe where everyone is free – free to drink and drive, and forget to take care when overtaking a little motor-scooter. ■

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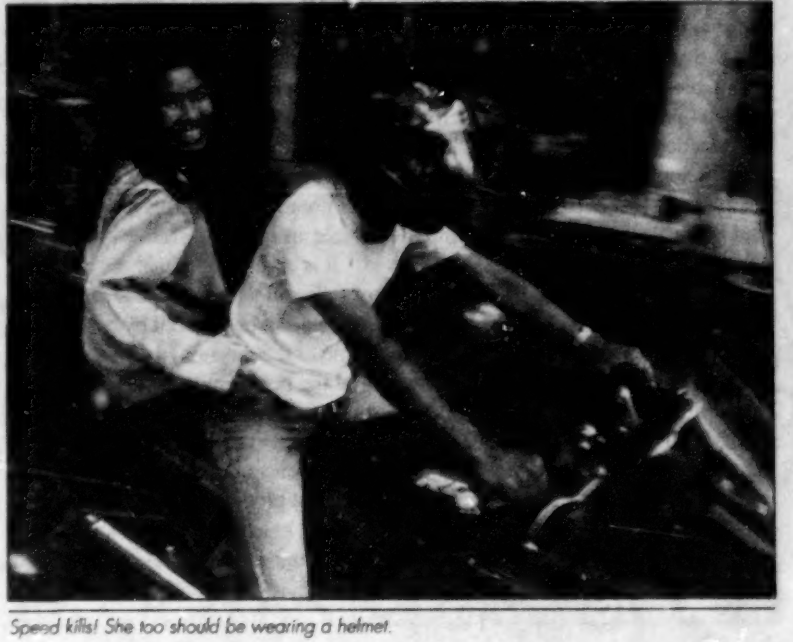

Speed kills! She too should be wearing a helmet.

The elderly can avoid falls

François Loew

In the industrialized countries, falls and their consequences are a relatively well-known phenomenon. Beyond the age of 65, up to 40% of persons fall at least once a year, suffering bruises or superficial wounds, but in 1–6% of cases they incur serious injuries such as fractures, including that of the femur. Fracture of the pelvis or the femur results in severe loss of mobility, incomplete recovery of functions, and eventually a degree of handicap that may need institutional care. The fear of falling again can become a social handicap in itself. So a fall – an apparently commonplace event in old people – plays a big part in diminishing the quality of life. In some developing countries whose populations are aging rapidly, this problem will soon affect enormous numbers of people.

Better awareness, better prevention

Most people think of a simple fall in the street or at home as a pure accident or – worse still – that "it's just an inevitable factor of old age". If the fall is accompanied by symptoms such as vertigo, debility, cardiac pain or loss of consciousness, it might be caused by a disease that needs investigation and medical treatment. In fact, simple falls at an advanced age often have several causes: they may be related to chronic neurological diseases (paralysis after a stroke, Parkinson's disease, blindness or dementia), or osteoarticular disease (arthrosis of the knees or the hip), or cardiac and circulatory ailments (low blood pressure or cerebral arteriosclerosis).

Potential dangers threaten when you are old and frail.

The aging process also predisposes people to falls as their legs grow progressively weaker, they become less agile, and their eyesight begins to fail. Drugs such as sleeping pills, tranquillizers and anti-depressants are statistically associated with fracture of the femur. What's more, the environment conceals unexpected dangers – icy roads, moving escalators, public transport – while at home there may be inadequate lighting or carpets that slip. An analysis of why an elderly person has fallen invariably shows up several possible causes; the fall is generally due not to a single disease but to a whole array of risk factors.

It is highly likely that the number of falls and the seriousness of the injuries can be reduced by cutting out some of the most obvious risk factors. Making people aware of these is the first step; everyone can do something to limit them by making slight adjustments to their way of life. The little test proposed in the box (page 11) will help you and others in your family to be aware of the risks.

Precautions

Some simple precautions in daily life will reduce the risk of falls and therefore of injuries, just as driving carefully in a well-maintained car and wearing a seatbelt can minimize the risk of an accident and injury on the roads.

- Keep fit by exercising your muscles, your balance and your mobility, all of which are vital to be self-reliant. Joining a gymnastic group ensures your physical well-being and keeps you socially active. Take care of your diet too, which should be both sufficient and varied; if you are losing weight, it's better to consult a health professional.
- It doesn't cost much to eliminate the dangers in your home. Loose carpets can be fastened down with adhesive, the bathtub can be fitted with handles and a non-slip rubber mat, you can install proper lighting and an easily accessible telephone, and make sure that stairs have banisters and that each step is clearly marked. Improvements like these can make it safer to move about.
- Avoid dangerous behaviour such as climbing on a stool if you are not very steady on your legs or are subject to vertigo.
- Cut out or limit to the minimum sleeping pills and tranquillizers. Experience shows that in many cases these drugs are a habit rather than a necessity, and that people can easily manage without them.
- Learn how to pick yourself up after a fall. You might lie for hours after a fall if you cannot get up (because of a fracture or simply through some temporary incapacity).
- Plan how to alert somebody if you live on your own. Make sure that you can easily call a neighbour and, if there is a telephone, that it is accessible from floor level.

Prepare in advance for your old age

All right, so you are still young or relatively young, and you don't feel directly concerned by this sort of advice? All the same, it is only sensible to prepare for old age by thinking in terms of prevention.

Keep active as long as possible. Sports of all kinds as well as walking, non-violent exercise and dancing can help, so long as you do them regularly. Oriental exercises such as Tai-Chi can be practised well into old age.

Osteoporosis, a disease which make bones more fragile and therefore more susceptible to fracture, commonly affects women after the menopause because of the physiological drop in the estrogen level. Hormonal supplementation with estrogen pills after the menopause is often recommended to prevent or delay osteoporosis.

A positive attitude to life is fundamental: don't accept "fate." Keep yourself informed, make a list of the potential risks and eliminate them wherever possible; that's the best way to prevent falls, fractures and a subsequent loss of independence. You will benefit from the feeling of greater security, and you will be on your way to enjoying a better quality of life. ■

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Safety in the home is important too.

Keep-fit exercises for the elderly in a Guyana street.

Am I at risk from falls? A little test

1. I had a fall and cannot explain why.
2. I only go out once a week.
3. I need help to get out of bed or out of an armchair, to dress myself or to wash myself.
4. I find it difficult to get up from a chair without some support.
5. I have trouble with my balance.
6. I walk rather unsteadily.
7. I have noticed a weakness, or loss of sensation, or loss of mobility in my legs (one or both).
8. I have problems seeing objects in front of me or on the ground.
9. I take sleeping pills or tranquillizers or anti-depressants.
10. I drink quite a lot of alcohol.
11. I have sometimes nearly fallen at home because of a rug, insufficient lighting, an obstacle in the way, or on a dangerous staircase.
12. I am afraid of falling.

If you reply "yes" to question 1, you are certainly at risk of falling again. If you say "yes" to two other questions, you risk having more falls. In either case, read the advice given in the article under the heading "Precautions".

Avoidable dangers on the farm

Dinesh [illegible]

Research in a small area of India showed that farm equipment must cause millions of injuries every year.

In many countries, statistics on people living in the countryside are either inadequate or non-existent

A large proportion of the world's population live in rural areas and a majority of these people are involved in agricultural activities. In spite of their numbers, people living in rural areas do not have access to adequate health care, and in most countries we do not have detailed epidemiological information about their health problems. This is partly because information on details of illness and injury do not get recorded in city hospitals, which is where most research is conducted.

In the 1960s and 1970s agricultural machinery was introduced to India in large numbers, particularly in those areas where "green revolution" practices were being followed. By the mid-seventies, reports started appearing in the press that many farmers were getting their hands crushed in machines which are used for the threshing of wheat – separating the grain from the chaff. This prompted scientists at the Punjab Agricultural University in northern India to undertake a scientific study of the threshing operation, as a result of which the first safety standards for the threshing machines were established. At about the same time, India adopted a Dangerous Machines Act which makes it illegal to sell and use agricultural machinery which is declared hazardous. Nevertheless, reports detailing traumatic injuries among farm workers continued to appear in our newspapers.

In 1985, we decided to do a detailed study of agricultural accidents, and by the end of 1986 we had assembled a team of engineers, designers, medical specialists and epidemiologists. We selected nine villages with a population of about 3500 families as our study area, and trained 15 local men and women to work as research assistants. These research assistants visited every home once every two weeks to record details of all illnesses and injuries over a one-year period.

We discovered that a large proportion of illnesses and injuries are treated at home or by local healers and doctors. If we had just gone to the large hospitals to collect data, we would have missed most of the cases. It was also surprising to find that injury cases comprised a total of 14% of all cases of morbidity; injuries were more frequent than diseases like malaria, hepatitis and chickenpox. This is very similar to the situation in many of the industrialized countries.

The study showed that about one in ten persons can expect to sustain an injury which disables for one day or longer. One-third of these injuries were due to activities related to agriculture and one-seventh while travelling from one place to another. One-fifth were due to play and leisure activities and only one-eighth to domestic activities. Violence was responsible for 6% of the injuries and suicides for 14% of deaths due to injury. All suicides involved ingestion of pesticides. Most of the very serious injuries were due to transport, or use of machinery and electric power.

Our data clearly showed that introduction of more powerful equipment, machinery and vehicles in a population results in an increase in traumatic injuries unless care is taken to make their use safer. Agriculture-related injuries in our study villages amounted to about 20 minor and three moderate-to-serious injuries per thousand people every year. This obviously means that in a country like India agriculture-related serious

injuries and deaths would be in the region of 5 million and half-a-million respectively. Most of the minor injuries are due to hand tools.

Women and children were also found to be victims of injuries with agricultural equipment. Women and older children work alongside men in many agricultural activities, while young children get injured because they play with equipment which is placed or stored around their homes. In these villages, children often got their fingers amputated while playing with fodder-cutting machines, and some women got their hands crushed while feeding grass into the machines. Threshing machines are also responsible for many hand-crush injuries.

A detailed examination of the conditions under which these accidents took place makes it very clear that, though the farm workers are very often aware of the hazardous nature of their machinery, they still end up being involved in accidents. This is why it is very important for safety features to be built-in when these machines are designed. The designer also has to take into account the realities of local life. For example, tractors are regularly used for transporting people, children play with equipment when not in use, and machines are dismantled and repaired on farms.

Our experience shows that it is possible to design inexpensive and practical safety features for farm machinery. To be acceptable, such safety equipment must not make the operation of the equipment more cumbersome or less efficient. It is best if these safety guards are permanently fixed on the machines.

In consultation with farmers, artisans, engineers and product designers we were able to make fodder-cutting machines much safer without increasing the cost significantly. This has been done by incorporating a warning roller before the crushing mechanism and attaching a blade guard which pushes children's hands away before the blade can touch the fingers. Over a hundred farmers in this area have now fitted these devices to their machines.

Similar improvements to equipment such as threshers, tillers and harrows can make farming a much safer occupation. But many more professionals will have to be involved and many more people will have to take up such work seriously. Otherwise the unnecessary maiming and killing of millions of farmers and their families will continue around the world. ■

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As new and more sophisticated machinery is introduced, safety becomes increasingly important.

Surviving burn injuries

Inferno injures hundreds when jumbo jet slams into apartment building. Workers die in fire at chemical-processing plant. Cigarette fire kills family of five. Burn scars disfigure young woman when sari ignites at kerosene stove.

Burn disasters make international and national headlines, yet most burn injuries occur in the home in all societies. Children under four years of age are three times more likely to be burned than any other age group, although the elderly have a high risk of dying from their burns. In homes throughout the developing world, the most common flame burn risk is associated with kerosene lamps and stoves. In industrialized countries, lighted tobacco products – primarily cigarettes – are the major cause of fire deaths.

There are massive discrepancies in survival rates between higher and lower income countries. By 1980 in wealthier countries, more than half of all patients with burns over 63% of body surface area survived. But a recent study in India found only four survivors out of 1617 patients with burns over more than 50% of the body surface.

What world and community leaders can do

- Support the training of health personnel in how to care for burn patients.
- Mount education campaigns to teach people to apply cold water as best first aid for burns.
- Support the efforts of the International Society for Burn Injuries (ISBI) to ensure that countries develop realistic "disaster planning protocols" to care for those injured in a major fire.

In cooperation with ISBI, WHO has been carrying out an information collection process for the past five years. A training manual has also been produced for use at primary health care level, and an overall assessment of burn epidemiology and prevention programmes will be made by 1994.

Accidents in the developing world

I. G. Badrun

Developing countries are showing much greater interest today in preventing accidents at work.

Why have developing countries made so little improvement in the toll of accidents? In part, people tend to look upon accidents as unavoidable fate, and as the price to be paid for a modern life-style.

- development of a critical mass for emergency and rescue work through the education and training of students, labourers, policemen and so forth;
- use of mass communications to attract public attention to the value of caring for life and property;
- research to assess the numbers of accidents, analyse their causes and devise models for prevention and innovative safety measures.

Accidents in developing countries have a major negative effect on social and economic development. The social and psychological effects they inflict can result in reduced productivity and even social instability. The economic losses can be both direct and indirect. The direct results take the form of losses in years of productive life, property and commodities, to which must be added the costs of insurance, prevention and medical treatment. The indirect effects may be reckoned in terms of the economic value of wasted time and ill-health, the need to compensate for lost lives, and reduced productive capacity.

After the Second World War the industrialized countries started to appreciate the value of prevention, and included accident prevention as an integral part of social policy. This move resulted in big reductions in the death rate, which in the past varied between 30 and 100 deaths per 100 000 inhabitants but nowadays stands at around 20 to 30 and is expected to drop even further.

In recent years, the developing countries have started to take steps towards accident prevention. These may be summed up as follows:

- legislative measures, concerning such matters as industrial and occupational safety, labour laws, health insurance and social security;
- executive measures and procedures to prevent accidents;

So little improvement

Why have the many actions taken by these countries in recent years made so little improvement in the toll of accidents? Firstly, people look upon accidents as unavoidable, and as the price to be paid for a modern life-style. Police authorities underestimate the value of properly recording accidents and analysing their causes and consequences.

Health personnel rarely take note of the types of injuries they treat, or try to correlate them with specific types of accident. Nor are they aware of the value of operational and creative research which is needed to improve safety and preventive care. There has been almost no socio-economic evaluation of the scale of the problem, and this results in a lack

of commitment at the top decision-making levels.

Above all, we see the unhappy coexistence of two life-styles in one society in the developing world. The poor sector, confronting all the social ailments of poverty, illiteracy and unawareness of self-care, sometimes has to use sophisticated and dangerous technologies without appreciating the risks involved and without any training in accident control or protection. At the same time there is an affluent group which tends to abuse modern technology and tools, lacking any sense of social concern and quite capable of irresponsible driving on the roads or playing with firearms while under the influence of alcohol or drugs.

In fact traffic accidents easily top the list of accidents and constitute around 50% of the total. Occupational accidents, mostly in industry or agriculture, come next, followed by accidents at home or during leisure pursuits. Childhood accidents are a special case, and so too are disasters, whether natural or induced, chemical or environmental. Criminal violence and homicide are not considered here.

An illustrative study of traffic accidents in Egypt covered only a restricted area but showed the situation in different districts, different roads and different weather. It found that 49% of those killed in such accidents were between 4 and 21 years of age. Some 67% of accidents occurred in towns where a high proportion were head-on collisions, and only 33% in rural districts; 54% of injuries to pedestrians occurred in towns, but villages through which highways pass are also highly dangerous. The weather played a larger role in rural areas and on highways than in towns: fog and rain were obvious causes of many accidents. The financial cost of road accidents could only be roughly calculated, but in the limited area of study alone they exceeded 100 million Egyptian pounds (about US$ 30.3 million) per year.

Crowded roads

Among the reasons for the rapidly rising incidence of traffic accidents in the developing countries are the increasing density of population, the growing numbers of motor vehicles of all kinds on the crowded roads, and the lack of proper maintenance and registration of cars. Traffic regulations and rules are frequently ignored by drivers and pedestrians alike.

As for occupational accidents, it is recognized that 70% of them are due to human error, which can be avoided by training and constantly drawing attention to the risks. An unsafe work environment accounts for 30% of cases; it is essential to introduce safe equipment and nonhazardous chemicals, and to improve work conditions. The best precaution would be to use only technologies with built-in safety measures.

In countries such as Egypt, new technologies are being introduced into agriculture and small-scale farming without thorough training being given to those who will use them. Injudicious use of fertilizers and pesticides causes many cases of toxic blindness, paralysis and death. The UN Environment Programme, in a 1982 report, has calculated that 750 000 people die every year from poisoning, pesticides alone killing 140 000; 99% of such cases occur in developing countries due to inadequate medical resources.

In the home too, many toxic materials are used, such as cheap cleansing agents that may cause skin burns and, if swallowed, severe intoxication or death. Faulty electric machines or wiring frequently cause burns, electrocution or house fires. Children are particularly exposed to the risks of poisoning, electrocution, drowning and burns, in addition to road accidents.

The present decade 1990–2000 is the Accident and Disaster Prevention Decade, and WHO has rightly chosen accident prevention as the theme for World Health Day 1993. There is a pressing need for developing countries to embark on an era of strategic planning policy aimed at securing a safer life for all citizens. This will involve gathering information at every level, drawing up legislation, financing in-depth research, and initiating national networks with international linkages. Above all, it will call for very positive measures to raise public awareness of the health hazards and the means of avoiding them. ■

Educated women are more likely to identify hazards that threaten their children.

Professor I. G. Badran is Scientific Adviser to the Government of Egypt, 2 sh. Dareil Shisu, Garden City, Cairo, Egypt.

Spokeswome violence and

Mrs Suzanne Mubarak, First Lady of Egypt:

One of the tragedies of modern-day society is the extent to which we are confronted with violence. Violence exists throughout the world and takes many forms, but one of the most shocking and insidious forms of violence is that which affects girls and women.

Violence against women must be seen in its broadest sense. Violence not only refers to the physical and mental abuse to which women are subjected. It also refers to the hidden violence that women face when they are discriminated against or denied basic human rights such as education, food, medical care, and a safe environment in which to live.

Violence affects women throughout their entire life span from the *in utero* period right through to old age. In some instances, the capacity to determine the sex of a child before it is born has been used to prevent the birth of girl children. In other cases, girls have been subjected to differential feeding practices which may affect their physical and mental well-being for the rest of their lives. Discriminatory practices in childrearing, such as keeping girl children away from school to work in the home, can be seen as a form of violence which may be detrimental to the girls' own health and that of their future children.

Within the family structure many women across societies suffer various types of abuse at the hands of their partners. Elderly women, too, are often the victims of mental and physical abuse within the confines of their family, or through the neglect and disinterest shown to them by society as a whole.

When a woman works outside her home she may encounter different forms of violence, from the lack of security on the streets to the overt or hidden violence and discrimination she faces in her place of work. Too often women are afraid to speak out against violence or abuse in the workplace for fear of losing their position.

These are but a few examples of the daily violence women and girls experience, and which result from the status they are accorded in society. All forms of violence against women represent an abuse of human rights.

Mrs Suzanne Mubarak, First Lady of Egypt

We must not allow these violations of human rights to go unrecognized and unchallenged. We must open our eyes to all forms of violence against women and combat them on all fronts: behind the doors of family homes; in the community; on the streets of our villages and towns; at work and in the political and economic institutions that govern our societies. Let us use the occasion of World Health Day 1993 to speak out strongly against this abuse of human rights and take strong measures to put an end to all forms of violence against women.

Her Royal Highness the Princess of Wales

against injury

KENSINGTON PALACE

by who visits a hospital that cares for injured
can fail to be convinced of our responsibility to
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or carelessness which contributes to children
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As Patron of the Child Accident Prevention Trust of
and and Wales, I am greatly encouraged by the
th Organization's decision to highlight accident
vention on World Health Day.

Diana

December, 1992

Her Royal Highness, the Princess of Wales:

Nobody who visits a hospital that cares for injured children can fail to be convinced of our responsibility to protect them from harm. All too often it is adults' negligence or carelessness which contributes to children being injured, permanently disabled or even killed.

Wherever in the world they are, as they learn about their surroundings and discover the joy of playing together, children depend upon adults for their safety. Much can be done to reduce the risks they face.

As Patron of the Child Accident Prevention Trust of England and Wales, I am greatly encouraged by the World Health Organization's decision to highlight accident prevention on World Health Day.

Diana, December 1992

Causes and remedies

Anthony Zwi, Bernita Msika & Eugene Smetannikov

In Zimbabwe, and in a Johannesburg township in South Africa, innovative studies are pointing the way towards reducing the human and financial toll of injuries.

It is well accepted nowadays that injuries are no accident. They are predictable, avoidable, and amenable to public health intervention. They are also becoming increasingly important in many developing countries for two reasons. Firstly, many of the communicable diseases which have characterized the health picture of populations in developing countries are increasingly being brought under control (the exceptions are HIV/AIDS and tuberculosis). Secondly, rapid urbanization, motor vehicle proliferation, new technology and availability of weapons are inevitably leading to higher rates of traffic accidents, violence, and injuries such as poisoning and burns.

The associated economic costs are high. Motor vehicle accidents alone are said to account for 1–2% of gross national product in a typical developing country. The high societal cost resulting from the deaths of the young and active, who are often the victims of both intentional and unintentional injuries, as well as the cost of providing acute care and rehabilitation for those who survive, imposes a significant burden on the economy and the health service.

The additional load in terms of pain and suffering to the families and carers of victims of injuries cannot be estimated, but is likely to be heaviest where communities have other pressing concerns and where the state is too poor to provide long-term care and support for disabled individuals.

How big is the burden of injury in Africa?

How big a burden?

In Africa, there is little experience of dealing with injury as a public health problem. Even where countries respond actively to road traffic accidents, public health personnel are often not prominently involved. We set up the project described here to try to answer the following questions: How big a health burden is injury, what are the most significant types of injuries and whom do they affect? What are the risk situations and risk environments that individuals and groups might be exposed to? What do injuries cost the country? What can be done to mount effective preventive programmes?

We have identified two sites: Zimbabwe, where work is taking place in collaboration with the Ministry of Health and other concerned individuals, organizations and public authorities, and – in collaboration with health and community workers – a township called Alexandra on the outskirts of Johannesburg, South Africa. In Zimbabwe the focus is national; in Alexandra it is local and more community-based.

In both sites, the approach has initially been the same:

- to identify the magnitude of the injury problem;
- to establish who (in terms of age, sex and socioeconomic status) is affected by which types of injuries;
- to identify risk factors and potential interventions;
- to assess which injuries to focus upon as a matter of priority (given that resources are limited);
- to implement and evaluate (in terms of efficacy and cost-effectiveness) the interventions introduced.

Zimbabwe has a well-developed health information system, and routinely records data at both outpatient and inpatient level from clinics and hospitals around the country. Such data can be built upon to ensure adequate information for our assessment. There is also an established rehabilitation programme, which in most cases deals with people who have suffered disabilities following injuries, many of them in the home. Furthermore, there are several national organizations and government ministries with an interest in safety at work and such problems as head injuries, disability and poisoning.

Public health burden

Although Zimbabwe faces a number of significant social and economic problems which may affect its ability to take on new activities, we were able to make a situation analysis examining the public health burden of injury. This was derived from meeting a range of people from different sectors with an interest in injury, as well as from consulting health service reports and statistics.

The main findings were as follows.

- Road traffic accidents, homicide, suicide and drowning (in that order) are the four most important causes of injury deaths in Zimbabwe.
- The crude injury death rates for males and females in 1988 were 73.8 and 27.5 per 100 000 population respectively. For almost all injuries, the male to female ratio is about 3:1.
- The most important types of poisoning incidents related to traditional medicines, children drinking paraffin, and accidental or incorrect use of medicines.
- Motor vehicle injuries were the most common cause of hospital bed-day usage, accounting for about 20% of all admissions. The next most heavy usage of hospital beds resulted from injuries due to natural and environmental factors (including venomous plants and animals), and falls.
- Patients with burns were admitted for longer (average, ten days) than patients with other types of injuries.
- Injury accounted for about 5% of clinic and hospital outpatient attendances in children under five years of age and 7% of those aged over five.
- Injuries accounted for over half of all new patients referred for rehabilitation therapy; most of these result from home injuries (often burns), followed by work and traffic injuries.
- The number of motor vehicle crashes has risen steadily from 10 428 in 1965 to 23 479 in 1989; while 477 were killed and 4966 injured in 1965, there were 1113 killed and 12 576 injured in 1990.
- The national railways, forestry, mining and quarrying are the most dangerous working environments.
- Violent crimes have increased by 25% in the 1987–90 period: it is unclear whether this reflects a changing incidence or higher rates of reporting.

Few data are available on the costs of injury in Zimbabwe: this will require primary research.

Alexandra township

With a population around 200 000, Alexandra is growing rapidly. The community is highly organized and benefits from the availability of a well-established, innovative, urban primary health care service; but it has been subjected to a high degree of political mobilization and political violence.

Injury-related work in Alexandra has focused on a small number of activities. A survey to determine the pattern of people with injuries attending the Alexandra Health Centre

Zimbabwe has well-established rehabilitation services . . .

. . . which are giving new hope to physically handicapped children

revealed that over half of the casualty attendances are injury-related, and that violence accounts for over 60% of all injury attendances.

A prospective survey will seek to identify the outcome of injuries seen at the health centre. What happens to those referred to hospital? What proportion of those with moderate or severe injuries experience temporary or even permanent disability? What are the costs associated with different types of injuries, and who bears those costs?

Furthermore, some attempt is being made to understand, in greater detail, the health burden of political violence in the township. What are the demographic characteristics of those affected? What types of injuries have been sustained? How have periods of political violence affected the provision of other health services, such as child immunization?

On the political agenda

One active community organization identified traffic accidents as a significant local problem. Police reports on accident events and their sites made it possible to identify "black spots", the correction of which could be placed on the political agenda of the local authorities. Since Alexandra residents may find themselves within the same local authority as the wealthy population to the north of Johannesburg, there are real opportunities for demanding and achieving environmental changes which will reduce the likelihood of traffic accidents.

Finally, concern has been expressed in a number of areas which warrant further work: domestic violence, especially against women; rape, including mapping its distribution as well as the socio-demographic characteristics of victims; and the risk factors associated with particular types of injuries such as paraffin ingestion in children, burns, dog bites, and gunshot injuries. Throughout these studies, qualitative and quantitative methods will be used; we hope that the combination of these – with economic, epidemiological and policy analysis, and the links with the community and health services concerned – will reveal appropriate ways of developing injury control programmes which have a high probability of success.

This work in two parts of southern Africa is still in the early stages. Although other innovative projects are taking place in relation to injury both in this part of Africa and elsewhere, little has been documented, especially concerning the population-burden of injury, its economic cost, and the possibilities of remedial interventions. It is to be hoped that sharing ideas at an early stage will help to stimulate collaborative and cooperative work which will enhance the chances of successfully tackling yet another of Africa's epidemics. If we do not respond now, the continent will suffer from doing too little too late to make any difference. ■

This research project is assisted by a research grant from the United Kingdom Overseas Development Administration, with the active support of Dr Shiva Murugasampillay, Head of the Department of Epidemiology and Disease Control, Ministry of Health, Zimbabwe; Dr Tim Wilson, Director of the Alexandra Health Centre, Alexandra, South Africa; and Dr Lucy Gilson and Ms Sidia Wasiriky in the Health Policy Unit, London School of Hygiene and Tropical Medicine.

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A happy family in Namibia. Unfortunately, many parts of Africa have to face epidemic outbreaks of violence and injury.

Violence against women

Lori L. Heise

Seldom seen as a public health issue, violence against women is a significant cause of female morbidity and mortality around the globe. In the USA, for example, wife abuse is the leading cause of injury among women of reproductive age. Between 22% and 35% of women who visit United States emergency clinics are there for symptoms related to on-going abuse.

But women in the USA share the reality of violence with women in virtually every other culture in the world. Data from developing countries reveal that one-third to over half of women surveyed report being beaten by their partner. Not uncommonly, beatings are part of a pattern of emotional and physical abuse that escalates over time. In Papua New Guinea, 18% of all urban wives surveyed had sought hospital treatment for injuries inflicted by their husbands. A survey of one Caribbean island revealed that one in three women had been sexually abused as a child.

Wife abuse also provides the primary context for many other health problems. Again, research from the USA indicates that battered women are four to five times more likely to require psychiatric treatment and five times more likely to attempt suicide than non-battered women. And they are at increased risk of alcohol abuse, drug dependence, chronic pain, and depression. In one US study of the use made of health care, a history of rape and/or assault was a stronger predictor of physician visits and outpatient costs than were a woman's age or other health risks such as smoking. Along with physical injury and emotional trauma, rape survivors run the risk of becoming pregnant or contracting sexually transmitted diseases, including AIDS.

An image of despair. Battered women are often prey to depression and despair.

Violence poses a powerful obstacle to achieving other goals that are high on the development agenda. During pregnancy, for example, it threatens the goal of "Safe motherhood" for all women. Battered women run twice the risk of miscarriage and four times the risk of having a low-birth-weight infant.

Despite such statistics, violence against women has only recently begun to be recognized as a health problem by the medical and public health establishment. The American Medical Association launched a major campaign in 1991 to educate the public and physicians about family violence. Hitherto, health professionals seldom identified battered women, and often failed to refer them to useful (and potentially live-saving) services.

On the international front, the Pan American Health Organization sponsored a conference in Managua, Nicaragua, in 1991 entitled "Violence against women: a problem of public health". The Ministry of Health in Colombia issued an action plan on women's health which included a programme on the "Prevention of abuse and attention to victims of violence". And the United Nations Development Fund for Women published *Battered dreams: violence against women as an obstacle to development.*

These international initiatives are the fruits of almost two decades of campaigning by women's groups around the world to combat gender-based abuse. In country after country, women have started crisis centres, passed laws, and worked to challenge the cultural beliefs and attitudes that underpin male violence. A recent directory lists 379 separate organizations working against gender violence in Latin America alone.

These grassroots efforts need to be supported and amplified by a commitment on the part of governments to prevent violence and assist the survivors of abuse. Important steps include: reforming laws that discriminate against women; expanding services to help victims; enacting and enforcing laws against battering, rape and sexual abuse; training professionals in the dynamics of abuse; eliminating gratuitous violence in the media; incorporating gender training, parenting skills, and non-violent conflict resolution into school curricula; and working to create social norms that define violence against women as unacceptable. ■

This article was prepared for the World Bank's World Development Report, 1992.

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Child abuse and neglect

Richard Krugman

Abuse and neglect of children is an emotional crippler and disabler of both children and adults. The cost of inaction far exceeds any potential cost of prevention.

For some children, life begins with untold suffering.

In early 1992, a young mother delivered a 700 g, 27-week premature infant at a Hospital in Denver, Colorado, USA. For the next two months the baby received intensive care, and for a third month was kept in the hospital. As he grew towards what would have been his birth weight of 2.5–3 kg in late spring of 1992, the baby was discharged from the hospital to his mother and her boyfriend, the father of the baby. The baby's hospital care, costing around US$ 100 000, was covered by state and federally provided health insurance.

The baby was sent home, but three weeks later was back in hospital with massive brain injuries as a result of a violent shaking when the boyfriend could no longer stand the baby's crying. That hospital bill for the baby approached $ 75 000. And the infant, who is now blind and developmentally disabled, will need to be institutionalized at a cost of at least $ 30 000 per year. In addition, the mother has been provided with state-ordered social services. Her boyfriend has been prosecuted and convicted of child abuse; the legal costs will approach $ 100 000. Keeping the man in prison for 16 years will cost $ 480 000.

This case is tragic in the extreme. While we have developed the technological skills to be able to save infants born prematurely at 700 g or more, we are somehow unable to develop the technological ability to intercede on that baby's behalf when it enters one of the most violent environments in the world – the family home.

Throughout the world in recent decades, increasing attention has been paid to the problem of child abuse and neglect. Wherever physical abuse, sexual abuse or emotional maltreatment of children – and particularly neglect – has been looked for, it has been found. In many parts of the world where the infant mortality rate is greater than 10–20%, the problems of physical abuse of children may be a lesser priority. But as WHO and others involved gradually reduce neonatal and infant mortality through immunization, sanitation programmes and the like, the issue of family violence and protection of the child will take on increasing importance.

Battered child syndrome

Over 30 years ago when Dr Henry Kempe coined the phrase "the battered child syndrome", there were thought to be as many as 749 battered children in the USA in that year. By 1991, there were 2.7 million reports of

Family love is a fragile thing

. . . society has a duty to protect it

abuse and neglect in the USA, which translates into well over a million children known to have been abused and neglected, and an incidence of about 2% of children being subjected to physical and/or sexual abuse. Countries around the world report comparable findings.

All this would not be so poignant or frustrating for those who work in the area if we did not know that the physical abuse of children is in fact preventable. Studies carried out throughout the last 20 years have shown that the provision of supportive home visitors, either public health nurses or trained lay people, to families who are at risk of using violence against children can prevent the abuse from happening. In 1991, the US Advisory Board on Child Abuse and Neglect recommended that, while not a panacea, home visiting was *the single most effective intervention* a community or a nation could develop in order to prevent physical abuse and neglect. In short, the intervention needed is one that will make it as easy for a family to get help before abusing their children as it is now for their neighbours to report them after it has happened.

We have not yet reached a similar level of confidence about our ability to prevent the sexual abuse of children, which is also a worldwide phenomenon. The toll in somatic, psychosomatic and psychiatric illness is increasingly being recognized. In surveys among adults in 14 different nations, very similar rates of prevalence of sexual abuse in childhood have been found. These studies suggest that as many as one-third of the adult female population and one-fifth of the adult male population experience some form of sexual abuse in childhood. Efforts in many parts of the world to prevent abuse include trying to teach children to protect themselves and tell an adult if they have been abused. These efforts are actually very effective in case-finding, but it is unlikely that very young children can protect themselves from adults or adolescents who wish to molest them.

In some parts of the world, child maltreatment takes the form of exploitation in the work force or in settings where they are used for the sexual gratification of adults, societal neglect of children who are left to fend for themselves on the streets, and the mutilation and maltreatment of children as a by-product of war.

As we approach the 21st century, the numbers of maltreated children continue to increase. It is clear that by paying more attention to this problem, we will have the opportunity to work on prevention just as in recent decades we have eradicated smallpox and are eliminating poliomyelitis and other scourges of childhood. Abuse and neglect of children is an emotional crippler and disabler of both children and adults. The cost to society of not dealing directly with the problem far exceeds any potential cost of the prevention efforts. ■

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Violent youth

Michel Manciaux

"Throughout history, the chief causes of premature mortality have been infectious diseases and violence", wrote William H. Foege, Executive Director of the Carter Center, in the *New England journal of medicine* in 1987. This brief quotation reminds us that, contrary to what many of our contemporaries think, violence has always existed and that, in common with communicable diseases, it is a source of suffering, trauma, disablement and death: all of which could be avoided through a well-planned prevention campaign. It is far from certain that violence is more widespread and more frequent in our modern societies than it was in the past. There are no figures enabling us to judge, and even if we had them any real comparison would be difficult, since the definition of violence is itself highly subjective.

What is sure is that aggression and violence intrude more and more into our daily lives; the instantaneous and worldwide coverage by the media makes sure of that. Another certainty, which daily observation and statistics confirm, is that adolescents and young adults more than any other age group are at one and the same time the instigators of violent behaviour and its victims. In the industrialized world, and in many Third World countries, violent death – which includes suicide, murder and accidental death – heads the list of causes of death among those aged 15 to 24, especially young men.

Daily observation and statistics confirm that adolescents and young adults, more than any other age group, are both the instigators of violent behaviour and its victims.

What does the future hold for this young refugee from Bosnia-Herzegovina?

Hecatomb of the young

We are justified in blaming this hecatomb of the young on young people's behaviour: experimentation, risk-taking, defiance of parental authority and of adults in general, and defiance of the norms and constraints of society, of death itself; but also collective behaviour where sudden impulse may overcome self-control and the instinct of self-preservation.

But other reasons are very evident in today's world: the absence of a recognized social status for the young, the loosening and even the total breakdown of traditional links within the family, the community and society itself, and uncertainty about the future. These factors combine to push a growing proportion of youngsters into the margins of society. Depression – which is more frequent during adolescence than most people realize – and aggression often reflect the disappearance of such traditional support networks as the extended family, peer groups, teachers. Marginalization, loneliness, the lack of a fallback position at times of stress can lead to violence and – in its terminal form – to suicide. The increase in suicide rates among the young is an alarming sign of the disintegration of the social fabric.

Violence in young people can turn against themselves, and self-aggression is a frequent symptom. Furthermore it can join forces with delinquent behaviour in a curious sequence: crime, guilt feeling, reaction of self-punishment; this may often explain truly suicidal behaviour at the wheel of a stolen car. Indeed, in many cases it is hard to trace the borderline between accident and suicide. The example of the car – like that of firearms, freely on sale in some countries – shows that aggression and

violence can have all the more serious results because the instruments for expressing those emotions are always to hand.

This discussion of road accidents would not be complete without a reference to the contributory role of alcohol. Many studies carried out in the USA have shown that the drivers most often implicated in fatal accidents are young males, driving at night and especially at the weekend, after a party where they have had a few drinks. Highlighting the fact that adolescence is the age of access both to motor vehicles and to alcohol, one Swiss writer proposes combining two youth training campaigns: "Learn to drive – and learn to drink."

Drugs are less frequently a cause of traffic accidents than alcohol; the violence which drugs generate is more often linked to trafficking. But in some countries it has reached an absolutely catastrophic level and risks destabilizing the whole of society; almost no region of the world is free from it.

A modern paradox: the loneliness of life in a huge and crowded city

Young people need the warmth of human friendship

Doing violence to young people

Very sure of their own judgement and opinions, whether personal, social or political, and quick to put their ideals into practice, adolescents can readily be mobilized for all sorts of causes, for better or for worse. In every period of history and all over the globe, it is the young who have provided the soldiers – and therefore the victims – in racial conflicts and warfare. Modern times show us all too many examples.

Youngsters too – in common with the elderly – are the principal victims of economic and social crises. The unemployment rate among young people, higher than the national average in many countries, is a disturbing indicator of the inability of those countries to integrate this living force – youth – into a harmonious social system. This constitutes a veritable denial of human rights – the right to work, to financial independence, to a social status – and its individual and social consequences are catastrophic. It amounts to doing violence to young people.

For if young people are often violent in their individual and collective behaviour, isn't this because in many ways our societies do violence to them? In other words, even though there are many palliatives for violence in young people in the form of education, regulations or even repression, the true remedy lies somewhere else. At the end of an article about violence in young people and the possible solutions, the executive director of the American Council for Crime Prevention concluded: "The burden is on us. Unless we help our young people develop a sense of stake in their communities and their futures, there may be neither communities nor future." ■

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Victims of war

Anthony Zwi & Antonio Ugalde

Modern warfare has no pity for children

In the aftermath of war, health workers must recognize that they have a key social role to play in reconstructing services, and that battle-related injuries and deaths are just the tip of the iceberg.

Over 21 million people died in the 150 wars that have taken place, mostly in the Third World, since the Second World War. The majority of those who died were civilians; in fact the proportion of civilian deaths to the military ones has been rising over this period and in the most recent conflicts has been well over 80%.

In 1991 alone, there were more than 30 major armed conflicts (defined as wars in which over 1000 battlefield-related deaths have taken place). This was fewer than in 1990. Four conflicts taking place in 1990 (Laos, Lebanon, Nicaragua and India-Pakistan) were no longer battlegrounds in 1991; but three new ones (international warfare in Iraq-Kuwait, state-formation conflicts in Yugoslavia, and internal conflict in Rwanda) started in 1991.

In 1992, the world was shown media images of hundreds of thousands of starving people in Somalia, victims of local warfare and a power vacuum, and the inability of the United Nations to play its role in conflict resolution, nation-building and the provision of humanitarian relief. In this kind of situation, food became a powerful commodity for making money, winning influence and exercising political power. The direct cost of the war in terms of lives lost was as high as 25 000 in 1991 alone; if one includes indirect costs, such as those related to famine, more than ten times as many deaths will have occurred in 1992. It is estimated that some 14 000 people were killed and 27 000 injured in Mogadishu alone between November 1991 and February 1992. How many individuals are disabled or have their psychological well-being undermined is anybody's guess! The effect on community structures, necessary for rehabilitation and reconciliation, has barely received attention.

Even where data are potentially available, as in the 1991 Iraq-Allied Coalition conflict, there are no official estimates of war-related deaths, injuries or disabilities among the participants and the civilian population. It is apparent that the governments involved have no interest in collecting and releasing such data – it is too political!

The health burden

As health workers, however, we need to confront the health burden of violent political conflict – a significant cause of direct injury, mortality and disability and an indirect cause of many forms of ill-health. The health damage depends very much on the nature and form of the conflict. A battle between conventional armies, rare in these days (aside from the Gulf War), will exhibit a particular pattern of injuries and deaths. However, even such a conflict will cause high civilian casualties, especially if military targets are in civilian areas, and if water supplies, sanitation, electricity and

transport routes are specifically targeted.

In a guerrilla war, there may be fewer direct battle-related casualties, but health may be affected through the impact on food, water supply and other services, the presence of landmines, and population movements to other areas in search of safety. State repression may be manifested through harassment and victimization of opponents of the state, as well as by detentions, bannings, disappearances, torture and political assassinations. Here the impact on the mental health of the individuals and their families and friends may be the most marked health effect.

Finally, opposition groups may, on occasion, take violent action in order to draw attention to their demands for an end to discrimination and inequalities in their societies. Such action will also lead to some physical and mental health morbidity, but the scale is often less than that exerted by the other three types of conflict mentioned above.

Impact on health services

Health services may be disrupted in a variety of ways. In Nicaragua, malaria control programmes suffered during the war, and cases of the disease soared. In Mozambique and Angola, infant mortality rates rose while those in all the surrounding countries, not affected by warfare, declined. Sexually transmitted diseases and HIV infection are bound to spread as a result of disrupted communities, health facilities and social structures. In Iraq, the lack of electricity and medical supplies rendered many health services inoperable.

War often results in priority being given to the injured, rather than to maintaining or developing primary care services operating at the periphery. Health promotion and health education activities are seen as luxuries few can afford.

The indirect effects of war are often more numerous, more difficult to overcome, and less likely to be identified as posing a risk to health. The massive movement of populations is one example. Over 40 million people in 1991–92 were displaced, many as a result of violent struggles in their home areas. This has caused significant health hazards, whether people are grouped in refugee encampments or not; water supply, sanitation, adequate food, communicable diseases, sexually transmitted diseases, and injuries all pose severe problems. The mental stresses associated with abandoning one's home, family and possessions, without any clear notion of what might occur in the future, are inalienable.

The diversion of government resources to military instead of civilian purposes such as providing education, water and sanitation services and access to health care has savage consequences.

Post-conflict issues

Even after the fighting stops, many of the hazards remain. Much of the population may have left their homes; others will return to destroyed houses, fields and services. Anti-personnel mines may have been left peppered across the land, representing a threat to people and agricultural activity, causing fear and limiting access to many areas. The psychological impact of war is great; children and adults may have witnessed, experienced, or participated in violent conflict, abuses and deaths.

The post-war situation might, on the other hand, offer some opportunities for influencing change and ensuring that the new health sector operates equitably and efficiently. Priority issues will need to include rehabilitation services for the disabled, reconstitution of the community structures and family and other networks, and maternal and child health care programmes.

Health workers must recognize that – although conflict is political – they, like other development workers, have a significant social role to play, and that direct battle-related injuries and deaths are just the tip of the iceberg. ■

... so how can health services hope to function normally when they are confronted daily with such tragedies?

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Warfare and health

Rémi Russbach

Innocent victim: her injured leg is only part of the story – she was pregnant and lost her baby

In armed conflicts, more people die from infection than from wounds. People living amid destruction, stripped of the basic needs for survival such as water, food and protection against the cold, easily fall victim to potentially lethal infections such as diarrhoea, measles or pneumonia.

In these chaotic situations the health services simply cannot carry out their job, while the institutions devoted to helping war victims do not tackle the basic cause of the problem because they have trouble enough responding to even a fraction of the victims' needs. As for the injured, they are at greatest risk between the moment they are wounded and when they are admitted to hospital, due to the lack of first aid care and of transport. The death toll among the injured during this first phase is anybody's guess.

Once they enter hospital, even though badly wounded, their survival is most often assured. But the decline in the quality of the care offered will result in outcomes well below what might be expected in peacetime. This will strongly influence the future life of the injured and their capacity for self-reliance in society.

The numbers of injured in a conflict are almost impossible to determine even though reliable statistics exist. For instance, among 14 221 injured people treated in the hospitals of the International Committee of the Red Cross (CICR) during the recent wars in Afghanistan and Cambodia, 23% were victims of mines, 26% of bullets, 46% of shrapnel, 2% of burns and nearly 3% of unknown causes. As for the site of injuries, 66% were in the limbs, 12% the head and neck, 7% the chest, 6% the abdomen and 9% in several places. Of 3262 injured by mines and cared for by the CICR, 21% were women and children; of the 11 116 prostheses for lower limbs fitted by the CICR, 26% were for women and children.

The consequences of armed conflict on a population's health are so drastic that the international community must look beyond the effects of war and examine its root causes. This will call for simultaneous action at several levels.

- Doing everything possible to settle political and economic differences by means other than violence.
- Insisting on respect for the Geneva Convention's rules governing the protection of non-combatants, which 174 signatory governments have accepted.
- Training the civilian and military health services to cope with a sudden influx of injured and to ensure their speedy transport to first aid stations.
- Teaching as widely as possible the principles of first aid and wartime surgery.
- Rehabilitating those very seriously injured in war so as to reintegrate them into society and restore their dignity and self-reliance.

Only by taking this global approach to the problem shall we be able to combat that most murderous of human scourges – collective violence and war. ■

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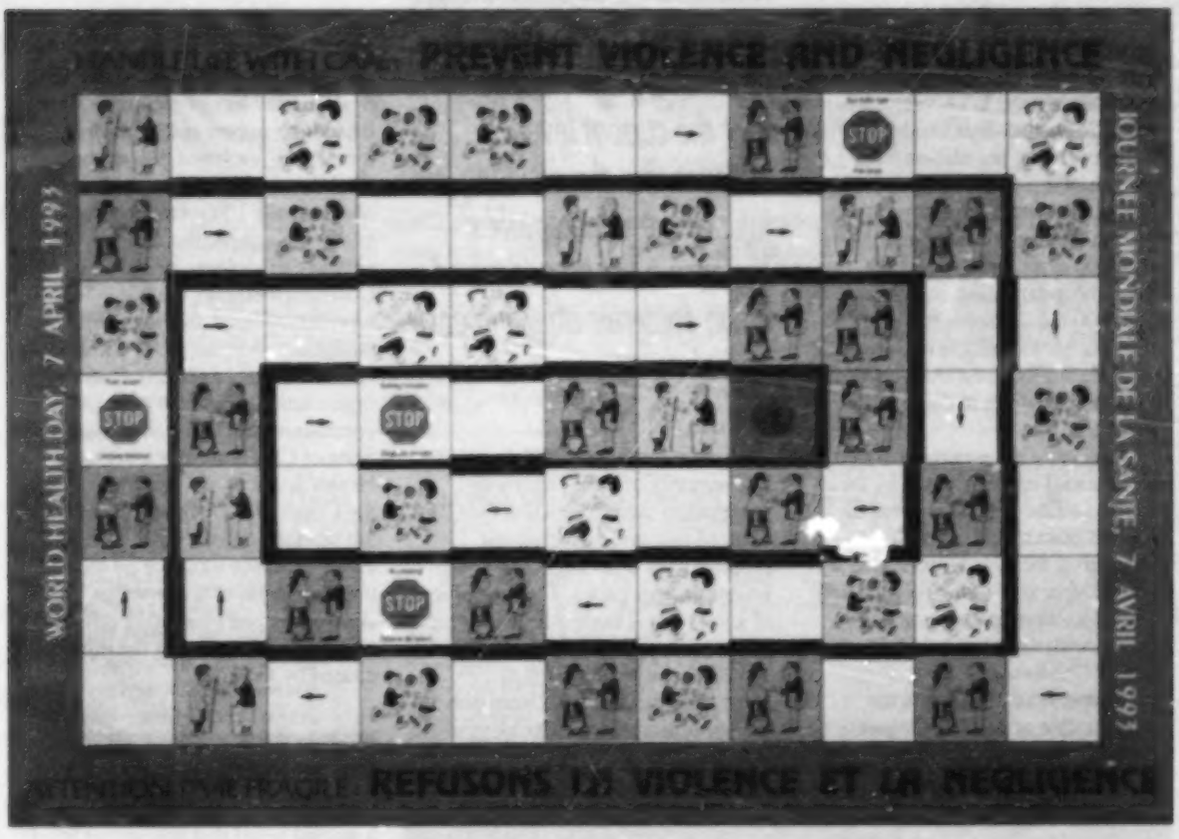
WHO in action


PREVENT VIOLENCE AND NEGLIGENCE
WORLD HEALTH DAY, 7 APRIL 1993
JOURNÉE MONDIALE DE LA SANTÉ, 7 AVRIL 1993
REFUSONS LA VIOLENCE ET LA NÉGLIGENCE
STOP

The Safety Game for All Ages

The new World Health Day game for 1993 is called The Safety Game for All Ages. It provides an opportunity to have fun, and at the same time to learn a lot about how to avoid injuries and their causes, whether they result from violence or from accidents, whether intentional or not. Based on the slogan for World Health Day, 7 April 1993 – Handle life with care; prevent violence and negligence – the game can be played by two to five people using a dice and 39 cards. Each card has a useful suggestion written on the back. One says, "Reduce accidents by using knives safely: push the blade *away from you*, not towards you"; and another, "Electric sockets can be fatally attractive for little fingers. Make sure they are out of reach".

Participants of all ages can play the game and learn at the same time; and they can also bring their own thinking and experience into the picture. This is why, at the bottom of the rules page, it is suggested: "The cards in this game represent only some of the situations that may lead to injury. Can you and your friends think of others?"

To obtain a copy of the game, please print clearly your name and full address on the form below, then cut it out and send it to the World Health Organization, Office of Information, 1211 Geneva 27, Switzerland. ■

Title (Mr, Mrs, Miss) .....

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Violence Prevention Coalition

Billie Weiss

Injury is the principal public health problem in the USA today. It is the leading cause of death and disability for the population from 1 to 44 years of age in Los Angeles County. Close to 2.3 million injuries occur in the County each year. More than 5400 result in death, 92 000 require hospitalization, and at least 2 000 000 require some medical attention. Motor vehicle accidents and homicide are the most frequent causes of injuries resulting in death in Los Angeles.

Because of the enormous social and financial burden caused by these injuries and the need to address the problem from a public health perspective, the Los Angeles County Health Department established a unit devoted to injury prevention and control, with financial help from the State of California.

Interpersonal violence is the leading cause of death for minority youth in Los Angeles. In 1991 alone, there were more than 2000 homicides. The majority of both victims and perpetrators were males less than 35 years of age, and an increasing proportion of this violence is related to youthful street gangs. The proportion of gang-related homicides has climbed from less than 20% of total homicides in 1980 to more than 37% in 1991. Most gang members are from one of the minorities in the 15 to 34-year-old age group.

The Coalition was brought together by a mutual belief that the current level of violence and the resulting injuries are unacceptable. Violence must be addressed as an epidemic affecting each one of us.

Young immigrants in western Europe. "Culture shock" is all too common among minority groups and host populations alike.

In response to the public health crisis caused by violent injuries, the Injury Prevention and Control Project formed the Violence Prevention Coalition in 1991. This group consists of more than 100 members who are experts in a particular category of violence or violence prevention. Coalition members include representatives from the community, business, medicine, public health, law enforcement, community-based organizations, the academic community and schools, as well as the State of California Department of Health Services and, most recently, the Centers for Disease Control. All are working together in a collaborative effort to reduce violence by measuring the magnitude of the problem, and by developing and promoting effective programmes to prevent the injuries caused by violence.

Unacceptable epidemic

The Coalition was brought together by a mutual belief that the current level of violence and the resulting injuries are unacceptable. Violence can no longer be treated as merely a law enforcement issue but must be addressed as an epidemic affecting each one of us. The Coalition members are in agreement that violence and violence prevention are the concern and responsibility of all segments of the public and private sectors. Moreover, a multidisciplinary approach utilizing the specific talents and expertise of the various disciplines can call attention to the problem, promote and implement prevention and intervention programmes, and evaluate programme effectiveness in order to significantly reduce violence and the resultant injuries. In addition, the Coalition provides a forum for influencing public policy regarding public health violence prevention in Los Angeles.

Activities of the Coalition include: tracking and sponsoring legislation,

A town acts against guns

In 1990, 43% of the United States population aged 18 and over owned a firearm – pistol, shotgun or rifle. Men were much more likely to own guns (53%) than were women (34%). Each year more than 600 000 crimes are committed in the USA using handguns, mostly in cities. The victims and perpetrators of these crimes are most likely to be young males (16 to 34); 56% of the population are afraid of becoming victims of violent crime, yet fewer than 3% actually will be victims.

The town of Gary, Indiana (population 160 000) resolved as a community to address the issue of abuse of firearms in a creative manner that would promote the community's health. The criminal use of firearms has long been a community concern, but increasing attention is turning to the link between gun ownership and family violence. One study showed that handgun owners are 43 times more likely to kill themselves or a family member than to shoot a criminal; suicide is five times more common in homes with guns.

Gary's solution to the firearm problem focuses not on whether individuals have a "right" to own a gun but rather on the responsible possession and use of guns – and on accountability when they are misused. Three actions form the core of the Gary Initiative, which is being promoted by the Gary "Healthy City" Committee.

- A ban on the manufacture, sale or importation of automatic or semiautomatic weapons except by military or police officials.
- A requirement that anyone owning a firearm be responsible for its safekeeping from children or incompetent persons, or else face criminal charges.
- Imposition of an added tax on weapons manufactured or imported into the State of Indiana; such a tax would be used in part to compensate innocent victims of firearm use.

investigating the media's role in violence, identifying curricula being used by schools, studying the effect of violence on the schools, establishing a comprehensive educational campaign about the effect of violence on the community, exploring community resources and programmes, and developing interactions between community-based organizations. Furthermore, the Coalition is exploring sources of data to quantify the scale of the problem, and drawing up standard definitions and developing linkages between data sets. A resource directory is being compiled, listing all of the resources available in Los Angeles and potential funding sources. The eclectic nature of the Coalition has encouraged the use of public health methods to evaluate the curricula being used by the schools. A series of forums and workshops is being presented to provide training to the schools. A bureau of speakers has been established, and the Coalition has facilitated the formation of smaller community coalitions.

Recent events in Los Angeles have highlighted the perception of violence as a way of expressing rage and frustration. More than 2000 visits to emergency departments occurred as a result of civil unrest in the streets of Los Angeles between 29 April and 1 May 1992. During this three-day period, both victims and perpetrators were more likely to be minority males, 15 to 34 years of age. As in the case of homicides and suicides generally in Los Angeles, most of the injuries were due to firearms.

This epidemic of violence is far from spent, and the activities of the Violence Prevention Coalition assume even greater significance. In May 1993 the Coalition will host a conference, "Our violent society", where the findings and recommendations resulting from these efforts will be presented. ■

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In the next issue

The March-April issue of *World Health* will be devoted to the Children's Vaccination Initiative, a joint venture of WHO and other UN agencies using new vaccine immunization technology. ■

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